# AFGHAN NATIONAL ARMY

STANDARD BUILDING DESIGN

TRASH COLLECTION POINT

100% FINAL DESIGN SUBMITTAL

### SHEET INDEX

1800 mm FENCING DETAILS

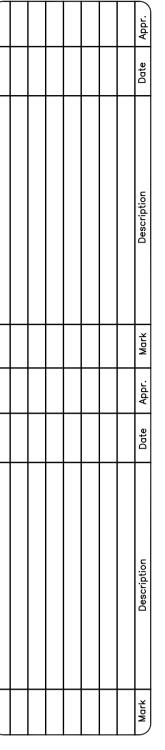
BUILDING SECTION

GENERAL NOTES AND DESIGN CRITERIA S - 101FOUNDATION/SLAB & ROOF FRAMING PLANS

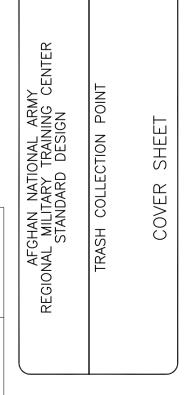
S - 401BUILDING SÉCTIONS S-701 TYPICAL DETAILS

FDN/SOG & ROOF FRAMING PLAN

US ARMY CORPS OF ENGINEERS



ENGINEERS	Designed by:	:/	Date: 3/07/2010	Rev:
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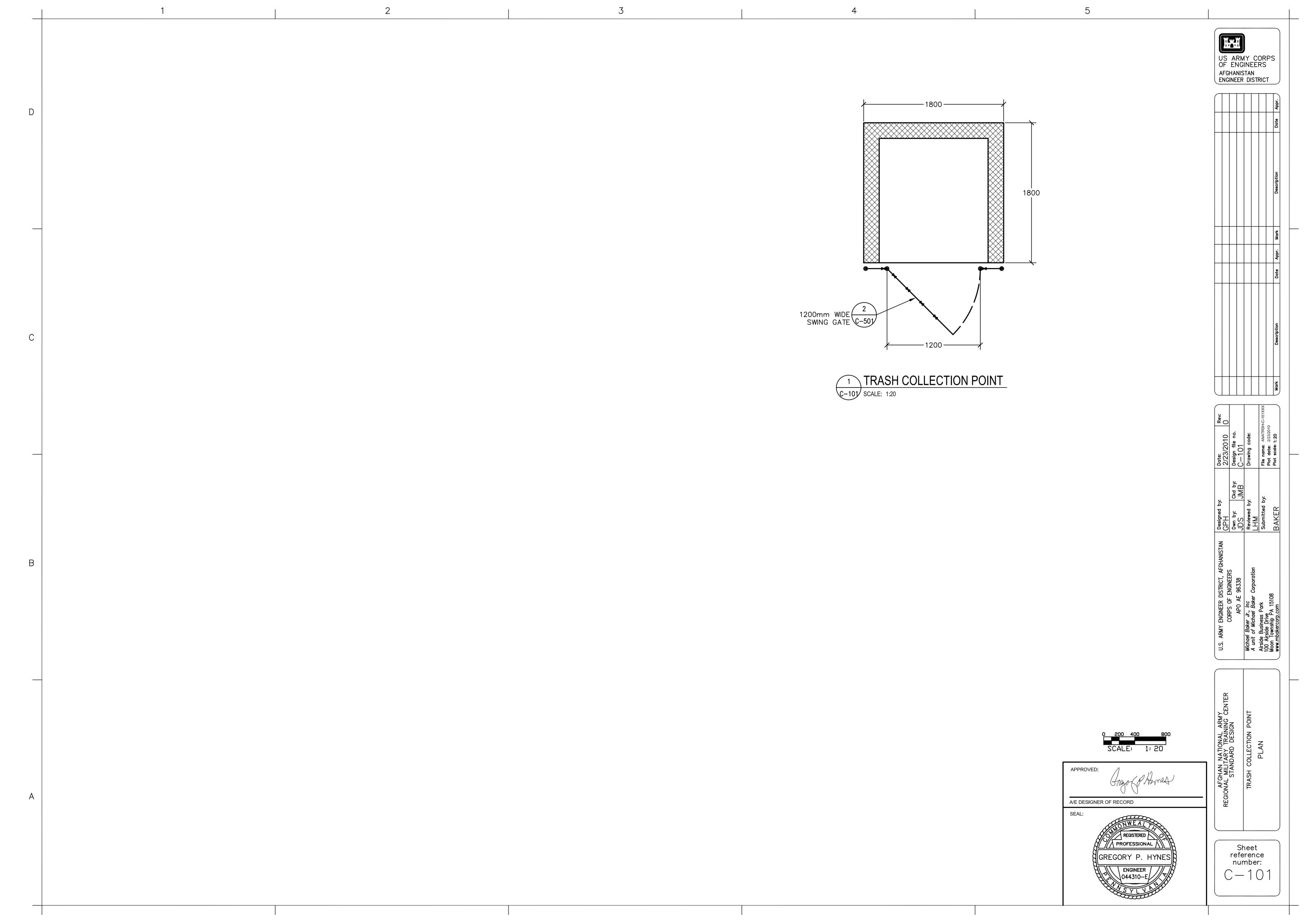


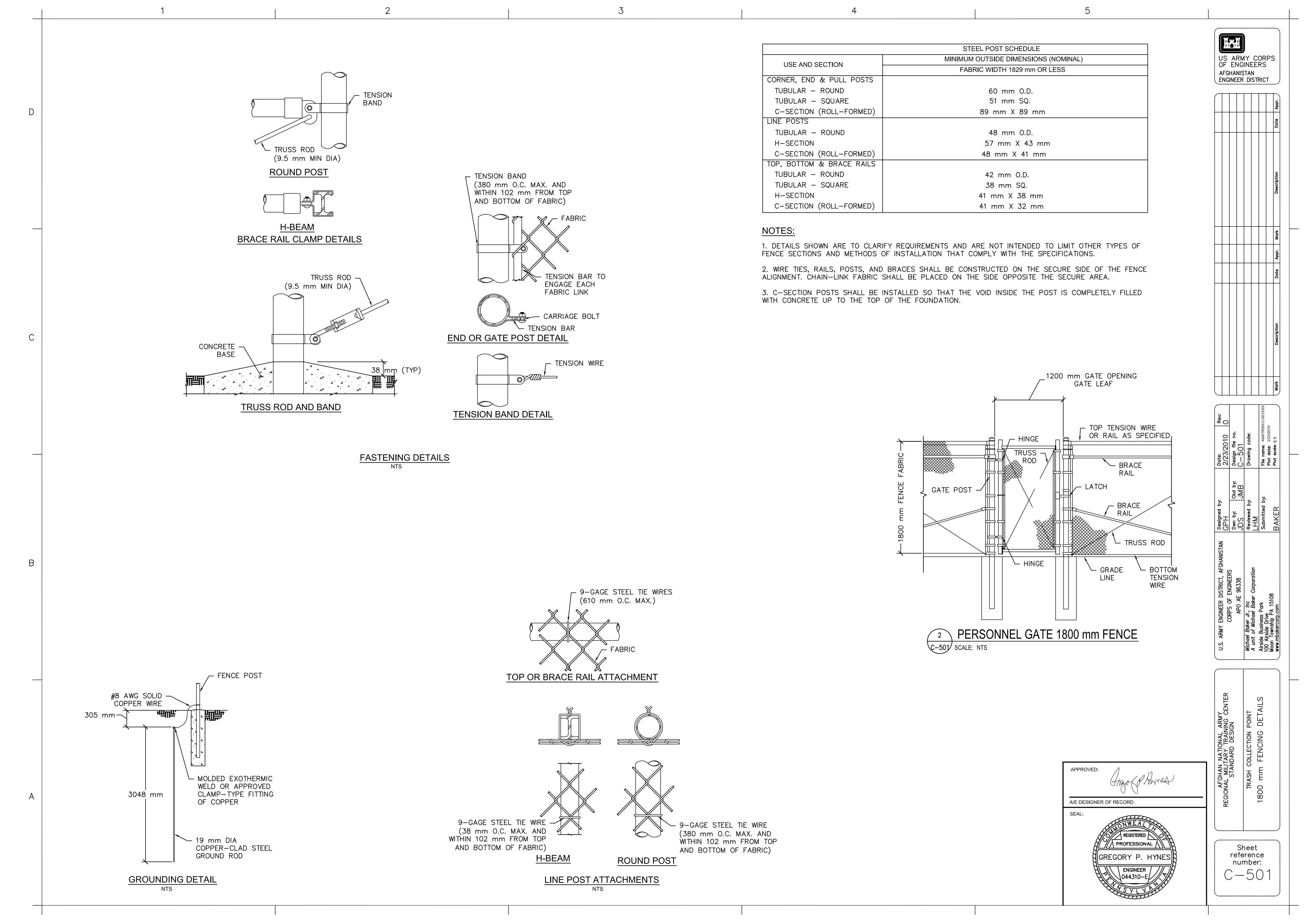
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APPROVED:

A/E DESIGNER OF RECORD





1.0 GENERAL NOTES: 1.1 THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC. OTHER TRADES.

1.1 COORDINATE THESE SHEETS WITH THE SHEETS OF THE

1.2 ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

1.3 WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED.

1.4 IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS

1.5 COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS.

2.0 FOUNDATION NOTES

THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. AN ASSUMED ALLOWABLE SOIL BEARING VALUE OF 72 kPa HAS BEEN USED IN THE STRUCTURAL ANALYSIS OF THE BUILDING HEREIN AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED ON THE BASIS OF DESIGN SHEET SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION.

2.2 SEE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS TO THOSE OUTLINED IN THE GEOTECHNICAL INVESTIGATION FOR EXCAVATION AND PREPARATION OF THE FOUNDATION AND THE SLAB ON GRADE SUBGRADE INCLUDING COMPACTION PROCEDURES.

2.3 EXCAVATIONS FOR FOOTINGS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 0.25mm POLYETHYLENE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HRS OF THE EXCAVATION OF THE FOOTING.

2.4 FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE GENERAL CONTRACTOR BEFORE FURTHER CONSTRUCTION IS ATTEMPTED. SEE PROJECT SPECIFICATIONS.

2.5 NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800mm

2.6 PRIOR TO START OF FOUNDATION OR SLAB-ON-GRADE CONSTRUCTION, EXISTING SUBGRADES SHALL BE COMPACTED TO MINIMUM OF 95% MAXIMUM DRY DENSITY OBTAINED THRU ASTM D 1557 MODIFIED PROCTOR TESTING.

2.7 SEE ELECTRICAL & CIVIL SHEETS FOR ANY REQUIRED

UNDERSLAB UTILITIES. 2.8 IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 18 MPa CONCRETE. DO NOT ATTEMPT TO REPLACE AND RE-COMPACT SOIL.

3.0 <u>CONCRETE</u> 3.1 CONCRETE SHALL HAVE THE UNIT WEIGHT OF 2400 kg/m<sup>3</sup> AND A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 28 MPa AT 28 DAYS. ALL CONCRETE SHALL HAVE A WATER-CEMENT RATIO OF 0.45. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR RETAINING WALLS, AND EXTERIOR GRADE

BEAMS. 3.2 NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE

3.3 MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05.

3.4 ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN.

3.5 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON

3.6 CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M-96a, GRADE 420 MPa, REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPLICES SHALL BE CLASS "B" UON.

3.7 HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR

3.8 ALL CONCRETE REINFORCEMENT SHALL BE DETAILED FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION. BASED ON IN COUNTRY REINFORCEMENT AVAILABILITY, IT IS THE CONTRACTOR'S OPTION TO ROUND DESIGNATED ODD NUMBERED REINFORCEMENT SIZES UP (1) ONE BAR SIZE.

3.9 ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON THE SHEETS

3.10 ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS.

3.11 THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE ELECTRICAL AND CIVIL SHEETS.

3.12 THE CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED.

3.13 FOR ALL WALLS, PROVIDE DOWELS INTO FOOTING AT EACH VERT REINF BAR, UON DOWEL SIZE SHALL BE SAME AS VERT REINF.

3.14 PROVIDE CONCRETE POUR STOPS OR FORMED AS

REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK 3.15 COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES. SUBMIT A COLD WEATHER

CONCRETING PLAN FOR APPROVAL. 3.16 THE FORMED SURFACES FOR REINFORCED CONCRETE SHALL ACHIEVE A "CLASS A" FINISH WHEN RECEIVING PAINT OR A "CLASS B" FINISH WHEN RECEIVING PLASTER OR TILE AS PER SPECIFICATION SECTION 03 31 00 CAST-IN-PLACE STRUCTURAL CONCRETE.

3.17 REFER TO S-800 SERIES REINFORCING BAR PLACEMENT DRAWINGS DEFINING LENGTHS, BENDS, AND SPACINGS FOR ALL STRUCTURAL CONCRETE. THE S-800 SERIES DRAWING ARE BASED ON THE S-400, S-500, S-600, AND S-700 SERIES DRAWING SCHEDULES, DETAILS, AND DIAGRAMS.

4.0 <u>CONCRETE MASONRY</u>

4.1 MASONRY CONSTRUCTION SHALL CONFORM TO UFC AS APPLICABLE SPECIFICATION FOR MASONRY STRUCTURES (ACI 530.1)

4.2 STRENGTH OF MASONRY MATERIALS SHALL BE AS

a. CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT, TYPE 1, CONFORMING TO ASTM C-90 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10.4 MPa ON THE NET AREA.

b. MORTAR SHALL CONFORM TO ASTM C-270 TYPE S c. GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 14 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C476M. GROUT LIFTS SHALL NOT EXCEED 1,400mm.

FOLLOWS:

d. REINFORCED MASONRY SHALL HAVE A STRENGTH F'm = 10 MPa. (F'm IS THE COMPRESSIVE STRENGTH OF THE MASONRY AT 28 DAYS AS DETERMINED BY PRISM TESTS).

4.3 ALL VERTICAL REINFORCEMENT FOR CONCRETE MASONRY SHALL BE ASTM A615M-96a, GRADE 420 MPa. ALL SPLICES SHALL BE LAPPED 48 BAR DIAMETERS MINIMUM.

4.4 BOND BEAMS SHALL BE SPACED AT 1200MM OC VERTICALLY. BOND BEAM REINFORCING SHALL BE CONTINUOUS AND PROVIDED AT WALL INTERSECTIONS AND WALL CORNERS (REFERENCE CONCRETE MASONRY NOTE 4.11). ALL BOND BEAM REINFORCING SHALL BE CONTINUOUS AND HAVE STANDARD ACI HOOKS AT EACH END. PROVIDE STANDARD BAR SPLICES AS SPECIFIED. AS AN ALTERNATE TO CMU BOND BEAMS, IT IS THE CONTRACTOR'S OPTION TO PROVIDE 200mm X 200mm CONTINUOUS CAST—IN—PLACE CONCRETE BOND BEAMS WITH (2)-#16 IN LIEU OF CMU BOND BEAMS INDICATED ON THE DRAWINGS

4.5 CMU CELLS THAT REQUIRE VERTICAL REINFORCING BARS AS INDICATED ON THE CONTRACT DRAWINGS AND/OR SPECS SHALL HAVE REINF BARS PLACED IN CENTERS OF CMU CELLS AND CONTINUOUSLY GROUTED UON. ALL VERTICAL REINFORCEMENT EXTENDS FULL HEIGHT OF WALL

4.6 ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES OF ALL WALLS SHALL BE GROUTED TO STOP FRAGMENTS FROM MORTAR BLAST.

4.7 CONTRACTOR SHALL COORDINATE LOCATION OF ALL OPENINGS WITH OTHER TRADES.

4.8 AT INTERSECTING BOND BEAMS, PROVIDE CORNER BAR FOR EACH HORIZONTAL BAR IN BOND BEAMS AT INTERSECTING WALLS. USE SAME SIZE AND SPACING AS HORIZONTAL BARS WITH LEG LENGTH = 50db.

4.9 THE ALTERNATE TOP OF CMU WALL DETAIL(S) SHOWN ON S-701 CAN BE UTILIZED AT THE CONTRACTOR'S OPTION IN PLACE OF THE CMU BOND BEAM DEPICTED ON DRAWING S-401. ALTERNATE DETAIL SHOWS CAST-IN-PLACE WALL BOND BEAM THAT CAN BE UTILIZED AT THE CONTRACTOR'S OPTION IN PLACE OF THE STANDARD CMU BOND BEAMS CONSTRUCTED OF CMU BLOCKS.

5.0 STRUCTURAL DESIGN CRITERIA

5.1 ALL DESIGNS SHALL CONFORM TO THE PROVISIONS OF THE IBC 2006 AND

5.2 DESIGN LOADS (PER IBC 2006 & UFC 3-310-01) 5.2.1 DEAD LOADS MISCELLANEOUS

5.2.2<u>LIVE LOADS</u> (PER IBC 2006 & UFC 3-310-01) ROOF 1.00 kPa SLAB ON GRADE 4.80 kPa

5.2.3<u>SNOW LOADS</u> (PER IBC 2006 & UFC 3-310-01) GROUND SNOW LOAD (Pg) 1.2 kPa SNOW IMPORTANCE FACTOR (I) 1.0 1.0 SNOW EXPOSURE FACTOR (Ce) 1.0 THERMAL FACTOR (Ct)

5.2.4 WIND LOADS (PER IBC 2006) 137 km/hBASIC WIND SPEED WIND IMPORTANCE FACTOR 1.0 WIND EXPOSURE CATEGORY DIRECTIONALITY COEFFICIENT (Kd) 0.85 TOPOGRAPHIC FACTOR (Kzt) 1.0

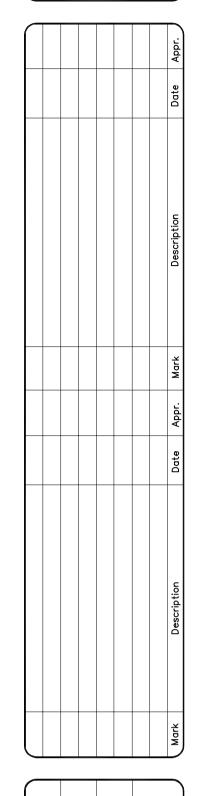
5.2.5 SEISMIC LOADS (PER IBC 2006 & UFC 3-310-04) OCCUPANCY USE CATEGORY SEISMIC IMPORTANCE FACTOR (Ie) SEISMIC SITE CLASS  $S_s = 2.40$  $S_1 = 1.20$  $S_{DS} = 1.60$  $S_{D1} = 1.20$ 

SEISMIC DESIGN CATEGORY SEISMIC RESISTING SYSTEM: -SPECIAL REINFORCED MASONRY SHEAR WALL RESPONSE MODIFICATION FACTOR (R) 0.32 RESPONSE COEFFICIENT (Cs) SEISMIC ANALYTICAL PROCEDURE = EQUIV LATERAL FORCE SEISMIC BASE SHEAR 25 kN

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ENGINEER DISTRICT

0.15 kPa



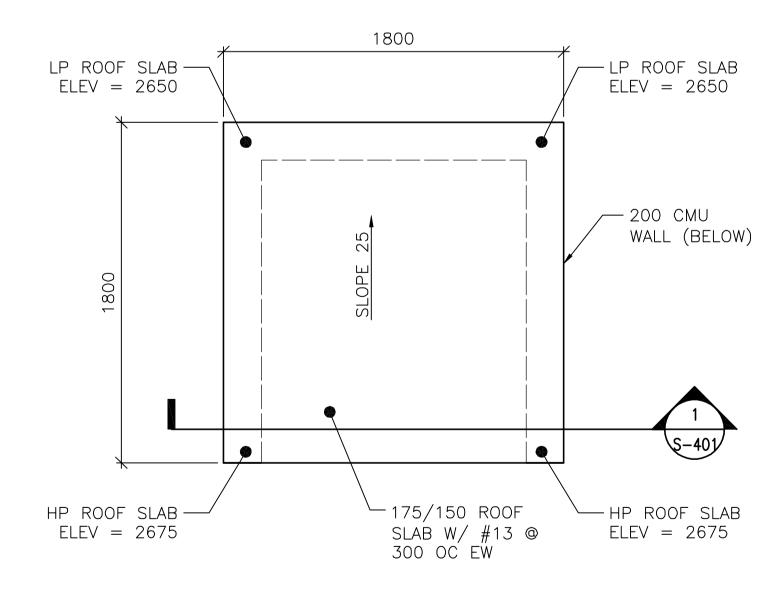
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APPROVED: A/E DESIGNER OF RECORD





**ROOF PLAN** 

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### FOUNDATION/SLAB PLAN NOTES:

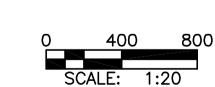
- 1. REFER TO SHEET S-001 FOR STRUCTURAL NOTES AND DESIGN CRITERIA.
- 2. FINISH FLOOR ELEVATION SHALL BE (DATUM 0.00) ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FLOOR ELEVATION.
- 3. SLAB-ON-GRADE IS 150 WITH #13 @ 300 OC EW LOCATED 38 FROM T/SLAB UON.
- 4. SEE TYP EXTERIOR CMU WALL REINFORCING DETAIL ON SHEET S-701.

## FOUNDATION/SLAB PLAN LEGEND:

REINF CMU WALL

#### **ROOF PLAN NOTES:**

- REFER TO SHEETS S-001 FOR STRUCTURAL NOTES AND DESIGN CRITERIA.
   TOP OF SLAB ELEVATION = 2600 UNLESS NOTED
- OTHERWISE. 3. ROOF SLAB IS 175/150 WITH #13 @ 300 OC EW.



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)



SEAL:



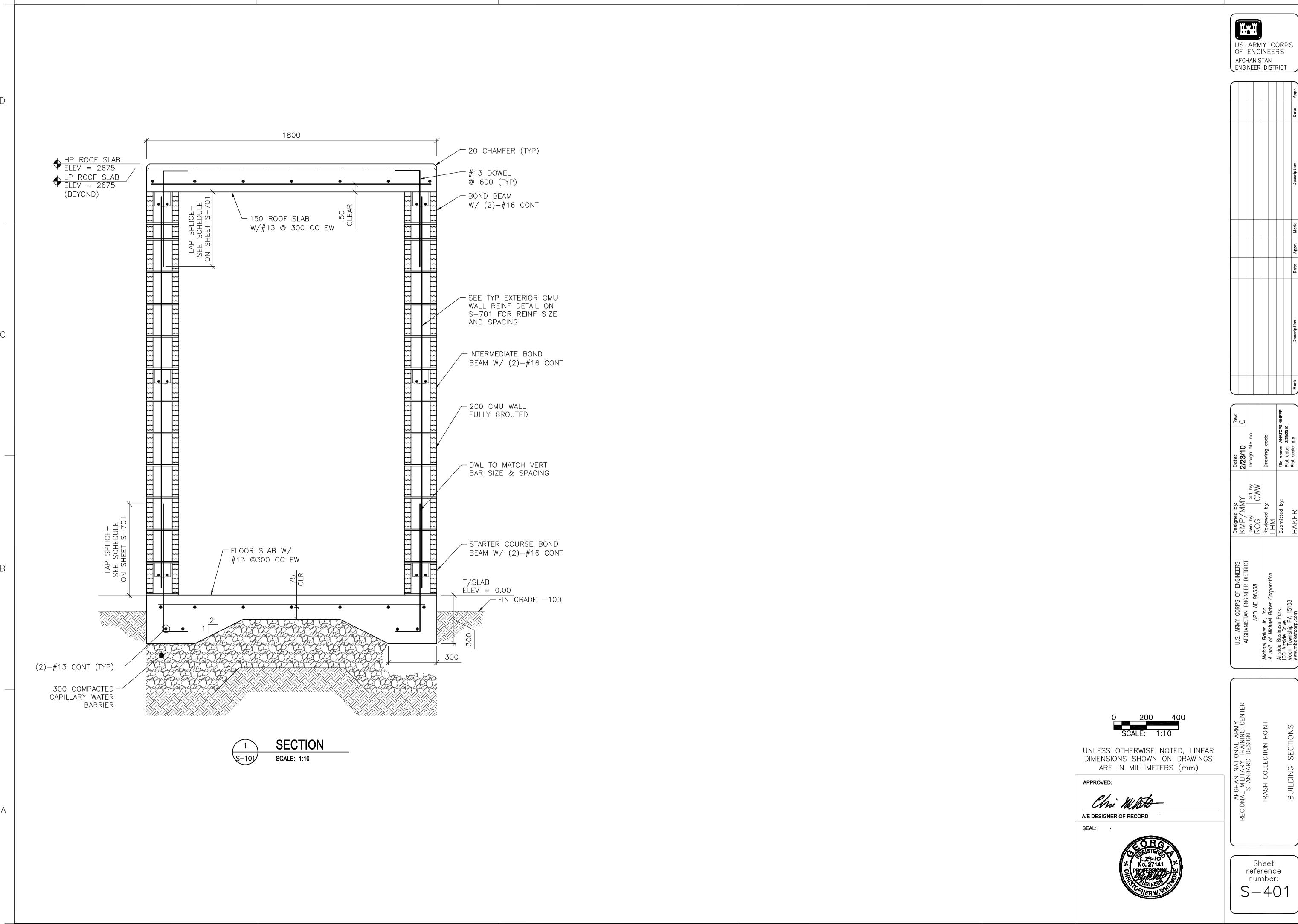
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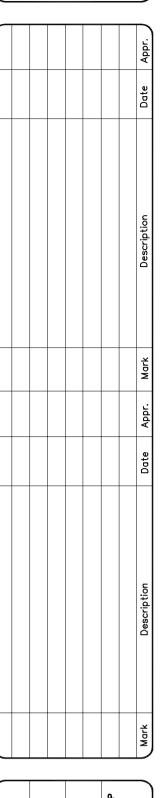
AFGHAN NATIONAL ARMY ONAL MILITARY TRAINING CENTER STANDARD DESIGN

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FOUNDATION/SLAROOF FRAMING

TRASH COLLECTION





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LAP SPLICE

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DETAIL NOTES:

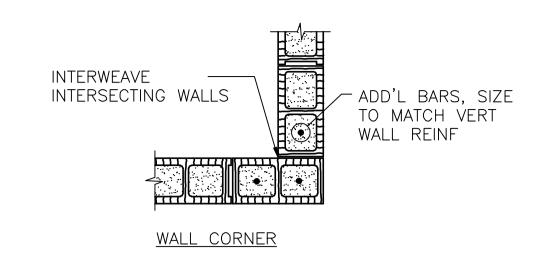
1. WHERE MORE THAN ONE ADDITIONAL BAR IS
REQUIRED PARALLEL TO THE EXISTING SLAB/WALL
REINFORCING THE ADDITIONAL REINFORCING BARS
SHALL BE SPACED AT 100 ON CENTER.

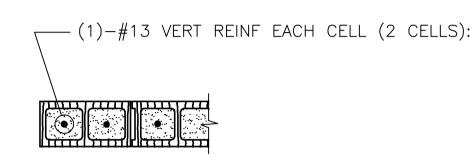
SHEAR WALL/SLAB OPENINGS

2. ADDITIONAL REINFORCING PARALLEL TO THE SLAB/WALL REINFORCING SHALL BE #16 BARS THAT PROVIDE A STEEL AREA ON EACH SIDE OF THE OPENING EQUAL TO 1/2 THE AREA OF THE REINFORCING CUT BY THE OPENING.

3. FOR OPENINGS WITH SIDES OR DIAMETERS LESS THAN 300 SPREAD THE SLAB/WALL REINFORCING TO CLEAR THE OPENING.



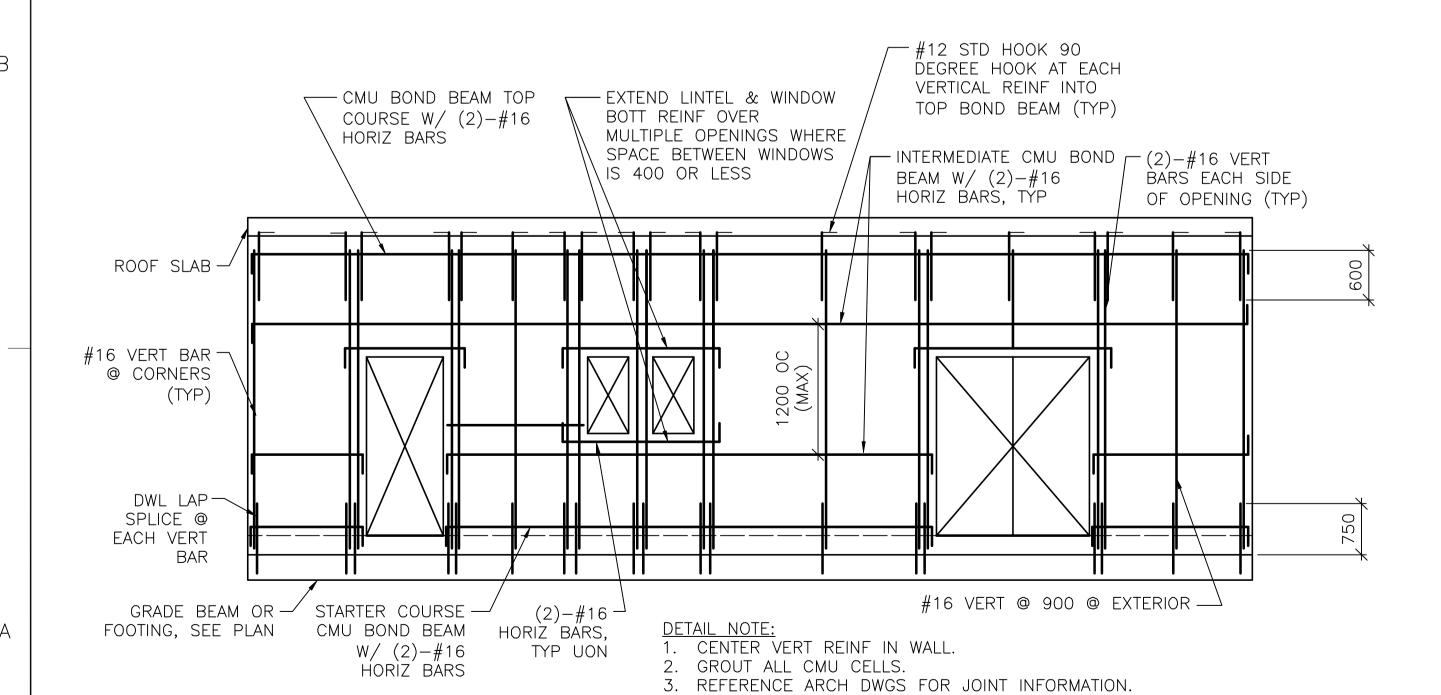


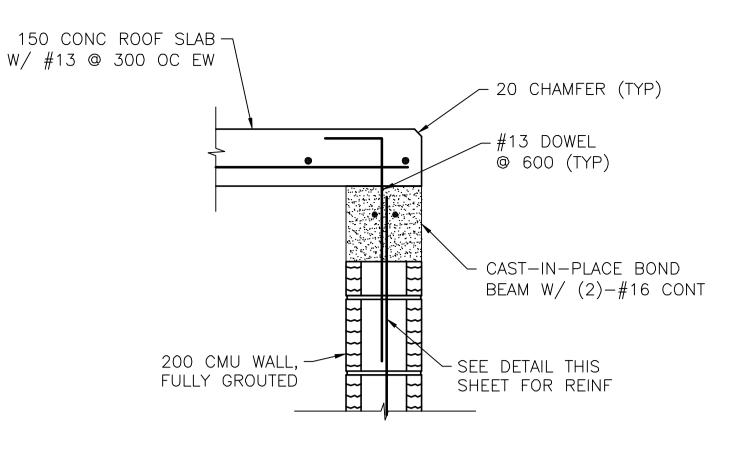


END OF WALL

NOTES: 1. ALL CELLS FULLY GROUTED.







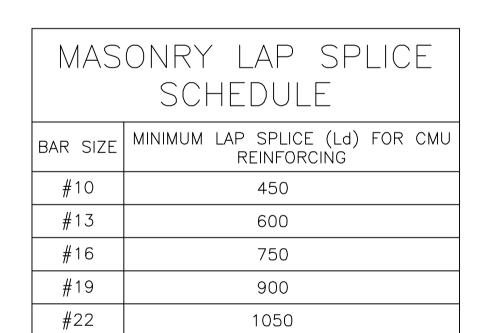
#### NOTES:

1. THIS DETAIL IS AN ALTERNATE TOP OF WALL ANCHORAGE DETAIL TO BE USED AT THE CONTRACTOR'S OPTION IN LIEU OF CMU BOND BEAM SHOWN IN DETAIL ON DRAWING S-401.

EXTERIOR WALL

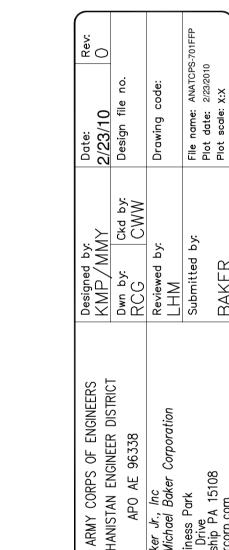
2. CAST-IN-PLACE BOND BEAM SHOWN AT TOP OF WALL IS ALSO APPLICABLE FOR INTERMEDIATE AND STARTER COURSE BOND BEAMS WITHIN WALL.





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US ARMY CORPS OF ENGINEERS

AFGHANISTAN

ENGINEER DISTRICT

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)



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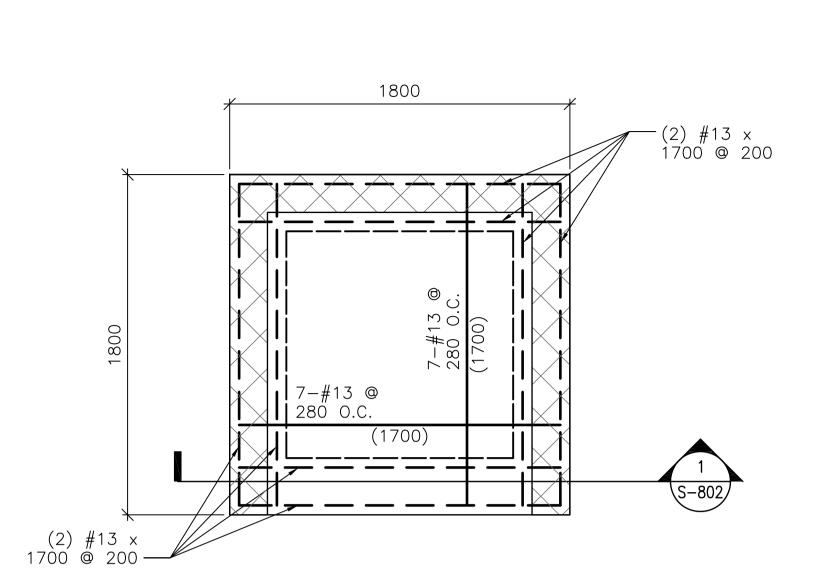
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REGIONAL MILITARY TRAINING CENTER
STANDARD DESIGN
TRASH COLLECTION POINT
TYPICAL DETAILS

Sheet reference number: S-701

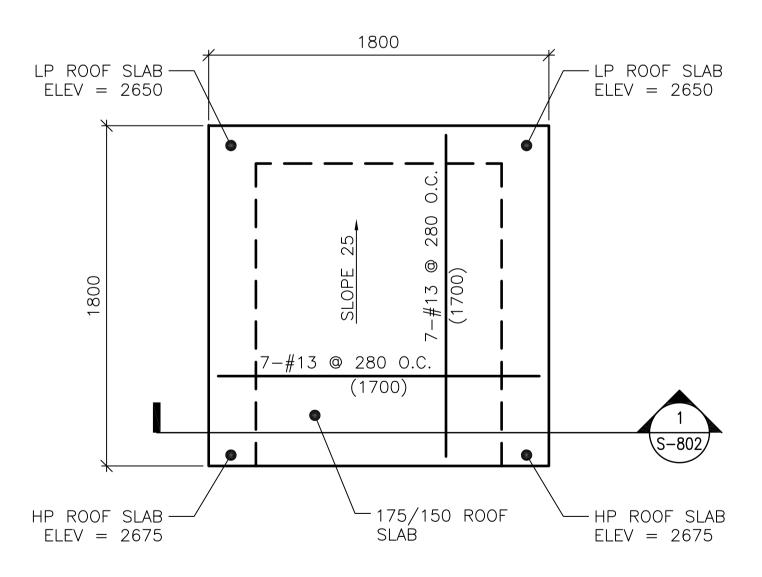
TYP EXTERIOR CMU WALL REINF DETAIL
SCALE: NTS

4. FOR INFORMATION ON ALTERNATE CAST-IN-PLACE WALL BOND BEAMS, REFERENCE

ALTERNATE TOP OF CMU WALL DETAIL THIS SHEET.



FOUNDATION/SLAB PLAN S-801 SCALE: 1:20



**ROOF PLAN** S-801 SCALE: 1:20

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US ARMY CORPS OF ENGINEERS AFGHANISTAN ENGINEER DISTRICT

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FOUNDATION/SLAB PLAN NOTES:

LOCATED 38 FROM T/SLAB UON.

ELEVATION.

SHEET S-701.

ROOF PLAN NOTES:

OTHERWISE.

REFER TO SHEETS S-001 FOR STRUCTURAL NOTES AND DESIGN CRITERIA.
 TOP OF SLAB ELEVATION = 2600 UNLESS NOTED

3. ROOF SLAB IS 175/150 WITH #13 @ 280 OC EW.

1. REFER TO SHEET S-001 FOR STRUCTURAL NOTES AND DESIGN CRITERIA.

2. FINISH FLOOR ELEVATION SHALL BE (DATUM 0.00) ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FLOOR

3. SLAB-ON-GRADE IS 150 WITH #13 @ 280 OC EW

FOUNDATION/SLAB PLAN LEGEND:

REINF CMU WALL

4. SEE TYP EXTERIOR CMU WALL REINFORCING DETAIL ON

ARE IN MILLIMETERS (mm)

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS

Sheet reference number: S - 801

AFGHAN NATIONAL ARMY REGIONAL MILITARY TRAINING CENTER STANDARD DESIGN

REBAR PLACEMENT DRAWINGS DN/SOG & ROOF FRAMING PL

